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| EXAMINER |
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THOMAS, ASHISH

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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| Office Action Summary | Application No. 10/784,167 | Applicant(s) NAKAGAWA, KUNIHIRO | |
| | Examiner ASHISH K. THOMAS | Art Unit 2625 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/24/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 5, 6, 8, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Aihara(U.S. 2004/0066969).

Regarding claim 1, Aihara discloses an image forming apparatus comprising: a page memory(**The storage unit stated in paragraph 39 reads on this page memory**) to store image data for every page; image rotating means for rotating the image data stored in the page memory at a specified angle(**Paragraph 44 describes a rotation unit 117**); image correction means for correcting pixels of which positional relationship was changed from that before rotation as a result of the rotation of the image data by the image rotating means to come near to the positional relationship before the rotation; (**Paragraph 82 describes a method that compares the pre-rotation and post-rotation data. If there are differences in the post-rotation data, then appropriate corrections are made.**) and image forming means for forming images based on the image data of which the positional relationship of pixels was corrected by the image correction means. (**Figure 1 illustrates an image output device 400.**)

Regarding claim 6, it is rejected in the same manner as claim 1. Note that claim 6 is a method claim that corresponds to apparatus claimed in claim 1.

Regarding claim 10, it is rejected in the same manner as claim 1.

Regarding claim 5, Aihara teaches an image forming apparatus comprising: a page memory to store image data for every page; **(The storage unit stated in paragraph 39 reads on this page memory)** image rotating means for rotating the image data stored in the page memory at a specified angle; **(Paragraph 44 describes a rotation unit 117)** first pattern holding means for regarding pixels required for correction as rotation-subject pixels when the image rotation means rotates the image data and for holding first image pixel data that are corrected with respect to a matrix pixel array pattern including the rotation subject pixels as noteworthy pixels; **(Paragraph 82 describes a method that compares the pre-rotation and post-rotation data. If there are differences in the post-rotation data, then appropriate corrections are made. The Examiner is equating the mean to hold the pattern to a mere storage, and such a storage is inherently taught in the reference. Otherwise, the comparison and correction step stated in the Aihara is not possible. Also note that that the original pixel data reads on the noteworthy pixels stated in the claim language.)** second pattern holding means for regarding pixels required for correction as non-rotation subject pixels when the image rotation means does not rotate the image data and for holding second image pixel data that are corrected with respect to a matrix pixel array pattern including the non-rotation subject pixels as noteworthy pixels; **(Figure 11 illustrates that only rotated area with positional defects are extracted.**

So, the non-extracted area reads on the second pattern. Once again, note that the original pixel data read on the noteworthy pixels.) image correction means for replacing the first image pixel data with noteworthy pixels of the image data that are in consistent with the first image pixel data when the image rotation means rotates the image data stored in the page memory(**Paragraph 82 details the correction process that replaces the defective pixel positions.**) and for replacing the second image pixel data with noteworthy pixels of the image data that are in consistent with the second image pixel data when the image rotation means does not rotate the image data stored in the page memory(**Paragraph 90 and 91 teaches an output process for an area wherein there are no positional defects.**); and image forming means for forming an image based on the image data corrected by the image correction means. (**Figure 1 illustrates an image output device 400.**)

Regarding claim 8, Aihara further discloses an image forming apparatus according to claim 6, wherein the correction step decides pixels of which positional relationship differ from that before the rotation when halftone processed image data was rotated as pixels subject to replacement and holds the pixel data of which positional relationship was correct for the matrix pixel array pattern including the subject pixels as noteworthy pixels. (**Paragraph 82 discloses a step that corrects rotated portion of an image when that portion doesn't match with the previously(pre-rotation) stored image. This ability to correct any defective rotated portions further implies the ability to keep track of the rotated portion, the corrected portions, and portions of the image that does not need correction. After all, without this ability, it would**

not be possible to make the corrections and output the image. Also, please note that the Examiner is equating the term noteworthy pixels, as stated in the claim language, to corrected pixels or portions of the image.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 3, 4, 7, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aihara(U.S. 2004/0066969) in view of Cho(U.S. 2004/0114782).

Regarding claim 2, Aihara teaches an image forming apparatus comprising: a page memory to store image data for every page(**The storage unit stated in paragraph 39 reads on this page memory**); image rotating means for rotating the image data stored in the page memory at a specified angle; (**Paragraph 44 describes a rotation unit 117**) corrected pattern holding means for regarding pixels requiring correction as replacing subject pixels when the image rotating means rotates the image data and holding the image data after correcting a matrix pixel array pattern including the replacing subject pixels as noteworthy pixels; (**Paragraph 82 describes a method that compares the pre-rotation and post-rotation data. If there are differences in the post-rotation data, then appropriate corrections are made. The Examiner is equating the pattern holding means to a mere storage, and such a storage is inherently taught in the reference. Otherwise, the comparison and correction**

step stated in the Aihara is not possible. Also note that that the original pixel data read on the noteworthy pixels stated in the claim language.) image correcting means for correcting the replacing subject pixels with the pixel array pattern when the image data searching means detect the image data in accordance with the pixel array pattern; (Paragraph 82) and image forming means for forming an image based on the image data corrected by the image correcting means. (Figure 1 illustrates an image output device 400.)

However, Aihara fails to explicitly point out searching means for searching image data in accordance with the matrix pixel array pattern held by the corrected pattern holding means out of rotary processed image data by the image rotating means.

Cho, on the other hand, discloses a searching means for searching image data in accordance with the matrix pixel array pattern held by the corrected pattern holding means out of rotary processed image data by the image rotating means. **(Paragraph 21 discloses a method that matches vector characteristics with previously registered data. This matching step inherently teaches the searching means stated in the claim language. Note that the matching is not possible without indexing the currently stored image.)**

Therefore, it would have been obvious for one of ordinary skill in the art, at the time of the present invention, to modify Aihara with Cho to fully put forth the image forming apparatus stated in claim 2.

The motivation is to devise a step that successfully searches the coordinates of a stored pattern to seek out any abnormalities. This, in turn, would yield an efficient and

accurate image processing apparatus. Also note that Aihara and Cho are combinable because both references deal with not only image processing, but they also deal with comparing currently stored patterns with previously stored patterns to detect any defects.

Regarding claim 7, it is rejected in the same manner as claim 2. Note that claim 7 is a method claim that corresponds to apparatus claimed in claim 2.

Regarding claim 3, Cho further teaches that the image forming apparatus wherein the noteworthy pixels are located at the central portion of the matrix pixel array pattern. **(Paragraph 34 details one method wherein the center coordinates are searched and processed.)**

Regarding claim 4 Aihara further discloses the image forming apparatus wherein the corrected pattern holding means makes pixels of which positional relationship differs from that before the rotating when halftone processed image data is rotated as pixels subject to replacement and holds corrected pixel data of which positional relationship was corrected for the matrix pixel array pattern including the replacing subject pixels as noteworthy pixels. **(Paragraph 82 discloses a step that corrects rotated portion of an image when that portion doesn't match with the previously(pre-rotation) stored image. This ability to correct any defective rotated portions further implies the ability to keep track of the rotated portion, the corrected portions, and portions of the image that does not need correction. After all, without this ability, it would not be possible to make the corrections and output the image. Also, please note**

that the Examiner is equating the term noteworthy pixels, as stated in the claim language, to the original image data.)

Regarding claim 9, Aihara teaches an image forming method comprising: a first holding step to regard pixels required for correction as rotation subject pixels when the image is rotated at a specified angle and for hold first image pixel data that are corrected with respect to a matrix pixel array pattern including the rotation subject pixels as noteworthy pixels; **(Paragraph 82 describes a method that compares the pre-rotation and post-rotation data. If there are differences in the post-rotation data, then appropriate corrections are made. The Examiner is equating the mean to hold the pattern to a mere storage, and such a storage is inherently taught in the reference. Otherwise, the comparison and correction step stated in the Aihara is not possible. Also note that that the original pixel data reads on the noteworthy pixels stated in the claim language.)** a second holding step to regard pixels required for correction as non-rotation subject pixels when the image data is not rotated and hold second image pixel data that are corrected with respect to a matrix pixel array pattern including the non-rotation subject pixels as noteworthy pixels; **(Figure 11 illustrates that only rotated area with positional defects are extracted. So, the non-extracted area reads on the non-rotation subject pixels. Once again, note that the original pixel data read on the noteworthy pixels.)** a storing step to store image data for every page; **(The storage unit stated in paragraph 39 reads on this page memory)** a rotation step to rotate the stored image data at a specified angle; **(Paragraph 44 describes a rotation unit 117.)** a correction step to replace pixels conforming to the

matrix pixel array pattern held in the first holding step when image data stored in the storing step is rotated and replaced in the rotation step and when not replaced by rotating, replace pixels at the data conforming to the matrix pixel array pattern held in the second holding step to the corrected matrix pixel data of the pixel array pattern, and a correction step to replace the first image pixel data with noteworthy pixels of the image data that are in consistent with the first image pixel data when the image rotation step rotates the image data stored in the storing step and to replace the second image pixel data with noteworthy pixels of the image data that are in consistent with the second image pixel data when the image is not rotated; **(Paragraph 82 details the correction process that replaces the defective pixel positions. Paragraph 90 and 91 teaches an output process for an area wherein there are no positional defects)** and a step to form an image based on the image data corrected in the correction step. **(Figure 1 illustrates an image output device 400.)**

But Aihara is silent on replacing pixels at the center of image data.

Cho, on the other hand, teaches replacing pixels at the center of image data **(Paragraph 34)**.

Therefore, it would have been obvious for one of ordinary skill in the art, at the time of the present invention, to modify Aihara with Cho to fully put forth the image forming method stated in claim 9.

The motivation would be to derive a correction method that specifically deals with the center-portion of an image. For example, incorporating the Cho reference would be beneficial in correcting position defects in an image illustrating the iris of the human eye

since it is usually located in the center portion of an image. Note that Aihara and Cho are combinable since both references discuss image correction methods.

Regarding claim 11, An image forming apparatus comprising: a page memory configured to store image data for every page; **(The storage unit stated in paragraph 39 reads on this page memory)** an image processor connected to the page memory, wherein the image processor rotates the image data stored in the page memory at a specified angle; **(Paragraph 44 describes a rotation unit 117.)** a pattern replacing table configured to make pixels requiring correction when rotating the image data by the image processor and hold corrected pixel data for a matrix pixel array pattern having a pixel with the pixel subject to replacement; **(Paragraph 82 describes a method that compares the pre-rotation and post-rotation data. If there are differences in the post-rotation data, then appropriate corrections are made. The Examiner is equating the mean to hold the pattern to a mere storage, and such a storage is inherently taught in the reference. Otherwise, the comparison and correction step stated in the Aihara is not possible. Also note that that the original pixel data read on the noteworthy pixels stated in the claim language.)** and a print engine configured to form images based on the image data of which positional relationship of pixels was corrected by the image processor. **(Figure 1 illustrates an image output device 400.)**

But Aihara fails to teach an apparatus wherein the image processor searches the image data in accord with the matrix pixel image array pattern held by the pattern replacing table out of rotary processed image data and replaces a pixel subject to

replacement that is the central pixel of the image data when image data in accord with the matrix pixel image array pattern is searched.

Cho, on the other hand, teaches an apparatus wherein the image processor searches the image data in accord with the matrix pixel image array pattern held by the pattern replacing table out of rotary processed image data and replaces a pixel subject to replacement that is the central pixel of the image data when image data in accord with the matrix pixel image array pattern is searched. **(Paragraph 21 discloses a method that matches vector characteristics with previously registered data. This matching step inherently teaches the searching means stated in the claim language. Note that the matching is not possible without indexing the currently stored image. Paragraph 34 details one method wherein the center coordinates are searched and processed.)**

Therefore, it would have been obvious for one of ordinary skill in the art, at the time of the present invention, to modify Aihara with Cho to fully put forth the image forming apparatus stated in claim 11.

The motivation is to devise a step that successfully searches the coordinates of a stored pattern to seek out any abnormalities. This, in turn, would yield an efficient and accurate image processing apparatus. Also note that Aihara and Cho are combinable because both references deal with not only image processing, but they also deal with comparing currently stored patterns with previously stored patterns to detect any defects.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASHISH K. THOMAS whose telephone number is (571)272-0631. The examiner can normally be reached on 9:00 a.m. - 5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ashish K Thomas/
Examiner, Art Unit 2625

/David K Moore/

Supervisory Patent Examiner, Art Unit 2625